INTERACTIVE ARCADE GAME APPARATUS

CROSS REFERENCE TO RELATED APPLICATION

Reference is made to and priority claimed from U.S. Provisional Application Ser. No. 60/049,145, filed Jun. 10, 1997, entitled INTERACTIVE ARCADE GAME APPARATUS by Douglas H. Smith et al.

FIELD OF THE INVENTION

The invention relates generally to the field of interactive arcades games. More specifically, it relates to such games in which balls or similar projectiles are thrown against a video enhanced game board for accumulating game scoring, the game board having player selected enhancements that personalize the game presentation.

BACKGROUND OF THE INVENTION

Electronic arcade games are known in which a video presentation is manipulated by a player to modify the video presentation in accordance with progress of a particular game being played or to control an element of the scene, such as a car, to vary the position of the scene element as the video scene changes. Such games requires a somewhat stationary player to manipulate game controls, such as a joystick, to control the progress of the video game.

More active games are also known in which the player or players toss, roll or slide projectiles toward a target and cumulative scoring is visually presented on a display. Video displays may also be used in such games to provide a degree of animation in the scoring display.

There is a need for an arcade style of game that give the player participants the ability to actively participate in the game as by tossing objects at a game display and allows the player participants to customize the display to personalize elements of the display thereby adding a high degree of interest in the game.

SUMMARY OF THE INVENTION

In accordance with the invention, there is provided interactive video game apparatus comprising a video display panel having a multi-dimensional array of contact responsive elements responsive to impingement of projectiles tossed by player participants to register a characteristic of the contact between the projectile and the display panel; a video display projector for displaying a video game on the display panel, the game elements being related to the position of the contact responsive elements on the display panel such that such registered characteristic of contact by the projectile with the display panel contributes to scoring in the displayed video game; player operated video display element creation means for allowing player participants in the game to create and display customized video elements for display in conjunction with display of the video; and means for displaying one or more of said customized display elements as part of the game display in association with contact between said projectiles and the contact sensitive elements of the display panel.

These and other aspects, objects, features and advantages of the present invention will be more clearly understood and appreciated from a review of the following detailed description of the preferred embodiments and appended claims, and by reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a front quarter perspective view of game apparatus of the invention;

FIG. **2** is a side view of the game apparatus of FIG. **1**;

FIG. **3** is a rear quarter view of the game apparatus of FIG. **1**;

FIG. **4** is a side sectional view of a display panel with projection screen and contact sensitive elements useful in the game apparatus of FIG. **1**.

FIG. **5** is an electrical schematic diagram of a tic-tac-toe game implemented in the apparatus of FIG. **1**, and

FIG. **6** is an alternative embodiment of the electrical schematic diagram of FIG. **5**.

DETAILED DESCRIPTION OF THE INVENTION

Referring jointly to FIGS. **1–3**, a game platform **10** includes a display panel wall **11** on which is mounted a large display panel **12**. A ball containment area **14** is provided with sidewalls **16**, a curved end wall **18** and a sloping ramp **20** used to contain balls thrown by players after bouncing off the display panel **12** and also to separate the display panel **12** from a player area **22** where players stand during the game. The player area **22** is defined by side walls **24** fanned outwardly to provide room for the players to move about and by a curved rear wall **26**. Preferably the player area **22** is large enough to accommodate at least two players simultaneously. A ceiling mounted digital or video image projector **30** is positioned over the game platform and operates to project a graphical image of a game layout directly onto the display panel **12**. Alternatively, a rear projector may be employed. In the embodiment shown, a tic-tac-toe game is projected onto the screen. Loudspeakers **32** are mounted on either side of the display screen and centrally over the screen. As shown in FIG. **3**, rear loudspeakers **34** are mounted in the rear wall **26**. The effect is to provide surround sound effects associated with the game that is focused primarily onto the player area to enhance enjoyment of the game.

An image capture station **40** is positioned on the rear wall **26** and comprises a digital camera **42** mounted on a vertically reciprocal frame **44** which can be raised and lowered. The image capture station **40** is configured on the movable frame with the camera **42** pointed away from the display panel **12** to allow easy capture of a player's image by positioning the camera at a convenient height level with the player's face. During image capture, the player stands at the rear of the platform outside the player area facing the screen **12**. With the camera ON, the player can view his image on the display panel to properly position the camera. When the player is satisfied with the displayed image, a button is pressed to capture the image which is then stored for subsequent use during the playing of the game.

Referring to FIG. **4**, the display panel **12** comprises a large flat projection screen **12***a* spanning a frame which may be 8' wide and 6' wide or whatever other size is appropriate to the platform configuration. The display panel includes a rear wall surrounded by a frame **13**. The projection screen **12***a* is stretched across the frame and is held slightly forwardly spaced from the rear wall. The projection screen is an electrically conductive cloth having a reflective front surface. Target segments **51** of electrically conductive material and corresponding to the nine squares of the tic-tac-toe game projected onto the front of the projection screen are positioned on the rear wall in alignment with the displayed game squares and are slightly spaced rearwardly of the projection screen. Off target segment areas **50** around and between the target segment areas **51** are covered by a similar electrically conductive material. The projection screen **12***a*, target seg-